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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,040	02/26/2004	Akihiro Kimura	12699/6	2928

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EXAMINER

BUKOWCZYK, JEREMY

ART UNIT	PAPER NUMBER
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3609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/786,040

Applicant(s)

KIMURA, AKIHIRO

Examiner

Jeremy Bukowczyk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/16/06, 3/21/06, 2/26/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, page 34 at lines 14-17, the phrase "a driver's accelerator-off action to require a driving force demand to said drive shaft subsequent to the driver's accelerator-on action" is confusing. For the purpose of this office action, it is assumed that the recitation relates to the delivery of a required acceleration force to the shaft.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoshiya et al. (US 6,315,068).

As per claims 1 and 10, Hoshiya discloses a hybrid vehicle that outputs power to a drive shaft linked with drive wheels, said hybrid vehicle comprising (col. 2, lines 32-36): an internal combustion engine (col. 3, lines 55-60); an electric power-dynamic power input-output module that transmits at least part of power from said internal combustion engine to said drive shaft through input and output of electric power and dynamic power (col. 3, lines 51-55); a motor that

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inputs and outputs power from and to said drive shaft (col. 4, lines 44-49); an electric accumulator that transmits electric power to and from said electric power-dynamic power input-output module and said motor (col. 4, lines 49-53); and a controller that, in response to a driver's accelerator-off action to require a driving force demand to said drive shaft subsequent to the driver's accelerator-on action, sets a specific drive point of said internal combustion engine to attain output of a driving force corresponding to the driving force demand to said drive shaft, based on the driving force demand and a discharge limit of said electric accumulator, and controls said internal combustion engine, said electric power-dynamic power input-output module, and said motor to drive said internal combustion engine at the preset specific drive point and to ensure output of the driving force corresponding to the driving force demand to said drive shaft (col. 4, lines 23-43).

As per claims 2 and 11, Hoshiya discloses calculating a first revolution speed of said internal combustion engine from a smoothed driving force, which is obtained by smoothing the driving force demand, and the discharge limit of said electric accumulator, and sets the calculated first revolution speed to a target revolution speed of said internal combustion engine at the specific drive point (col. 5, lines 24-35).

As per claims 3 and 12, Hoshiya discloses setting the smaller between the first revolution speed and a second revolution speed to the target revolution speed of said internal combustion engine at the specific drive point, where the second revolution speed is obtained by smoothing a revolution speed of said

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internal combustion engine calculated from the driving force demand (col. 5, lines 24-35).

As per claims 4 and 13, Hoshiya discloses a first revolution speed calculated from a first driving force, which is transmitted to said drive shaft through input and output of power from and to said electric power-dynamic power input-output module, to the target revolution speed of said internal combustion engine at the specific drive point, where the first driving force is obtained according to a specific relation that a sum of the first driving force and a second driving force, which is input and output between said motor and said drive shaft, is equal to the smoothed driving force obtained by smoothing the driving force demand and according to another specific relation that a sum of a first electric power input from and output to said electric power-dynamic power input-output module and a second electric power input from and output to said motor is equal to the discharge limit of said electric accumulator (col. 6, lines 45-53).

As per claims 5 and 14, Hoshiya discloses a power input from and output to said electric power-dynamic power input-output module, which is calculated from the first driving force, into a target power of a relational expression, reversely calculates the relational expression to specify a target revolution speed, and sets the specified target revolution speed to the first revolution speed of said internal combustion engine, where the relational expression determines a target power to be input from and output to said electric power-dynamic power input-output module in feedback control of said electric power-dynamic power input-

output module with the setting of the target revolution speed of said internal combustion engine (col. 5, lines 36-52).

As per claims 6 and 15, Hoshiya discloses a driving condition specified to drive said internal combustion engine at the preset specific drive point, while driving and controlling said motor to output a specific driving force to said drive shaft, where the specific driving force corresponds to a difference between a driving force applied to said drive shaft by the actuation and the control of said electric power-dynamic power input-output module and the smoothed driving force obtained by smoothing the driving force demand in response to the driver's accelerator-off action (col. 5, lines 9-16).

As per claims 7 and 16, Hoshiya discloses a restriction of the discharge limit of said electric accumulator (col. 10, lines 51-54).

As per claim 8, Hoshiya a three-shaft power input-output assembly that is connected with three shafts, that is, an output shaft of said internal combustion engine, said drive shaft, and a third shaft, and specifies input and output of power from and to one residual shaft among said three shafts, based on powers input from and output to two shafts among said three shafts (col. 11, lines 43-51); and a generator that inputs and outputs power from and to said third shaft (2).

As per claim 9, Hoshiya discloses a rotor motor, which comprises a first rotor linked with an output shaft of said internal combustion engine and a second rotor linked with said drive shaft and outputs at least part of the power from said internal combustion engine to said drive shaft accompanied with input and output

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of electric power generated through an electromagnetic interaction between said first rotor and said second rotor (col. 4, lines 44-53).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (US 5,806,617) in view of Hoshiya et al. (US 6,315,068 B1).

As per claims 1 and 10, Yamaguchi teaches a power output apparatus for a hybrid vehicle, including an engine (2), an electric power dynamic device (42, 45) that can transmit power from the engine to an drive shaft (e.g. 56); a motor that can output power, a battery, serving as an electric accumulator and wherein the state of charge (and thus a charge limit constituting the difference between a full charge and a measured state of charge) is measured (figure 15), wherein when an accelerator pedal is released (figure 12, point [5]), a controller sets a drive point for the engine (TE) which is selected to shift from a higher value (TE2) to a lower value (TE1 - see figure 14, step 213), the reduction in drive torque constituting a braking force and the increase in drive torque constituting a driving force; the controller additionally controlling the output of the motor (IM, figure 12) and indirectly at least the state of the gearing of the power dynamic device in the

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through-putting of engine torque (note col. 12, lines 52-64), the control of the engine and motor being based on thresholds (b1, b2, c1, c2) related to the battery state of charge, wherein the thresholds are varied with the state of charge (see figure 15). Yamaguchi fails to explicitly teach the motor as being capable of inputting power.

Hoshiya in the same field of invention discloses a motor capable of inputting power (col. 9, lines 59-67).

From this teaching of Hoshiya, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a hybrid vehicle of Yamaguchi to include a motor capable of inputting power as taught by Hoshiya, for the purpose of providing an additional source of regenerative energy, (e.g., for heavy braking).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chhaya et al. (US 6,484,833), Minowa et al. (US 6,328,670), Frank (US 6,116,363), Tabata et al. (US 5,923,093), Furutani et al. (US 5,497,070), Kimura et al. (US 2004/0231897), and Kawakatsu (US 4,335,429) teach vehicle systems and structures of pertinence.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Bukowczyk whose telephone number is 571-270-3022. The examiner can normally be reached on Mon-Thu 6:30am-5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynda Jasmin can be reached on 571-270-3033. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jb



BENNY TIEU
PRIMARY EXAMINER